FIG. 1

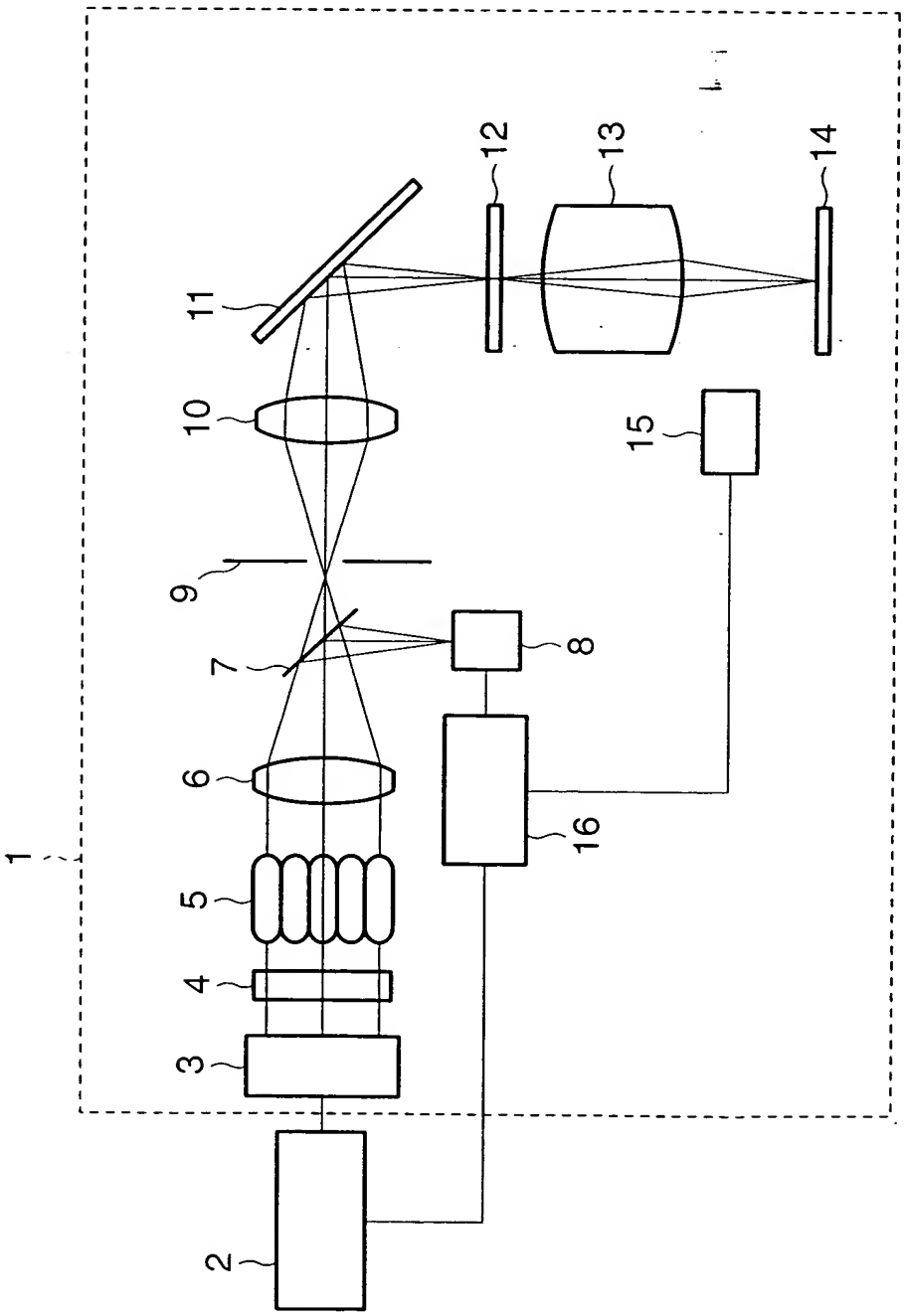
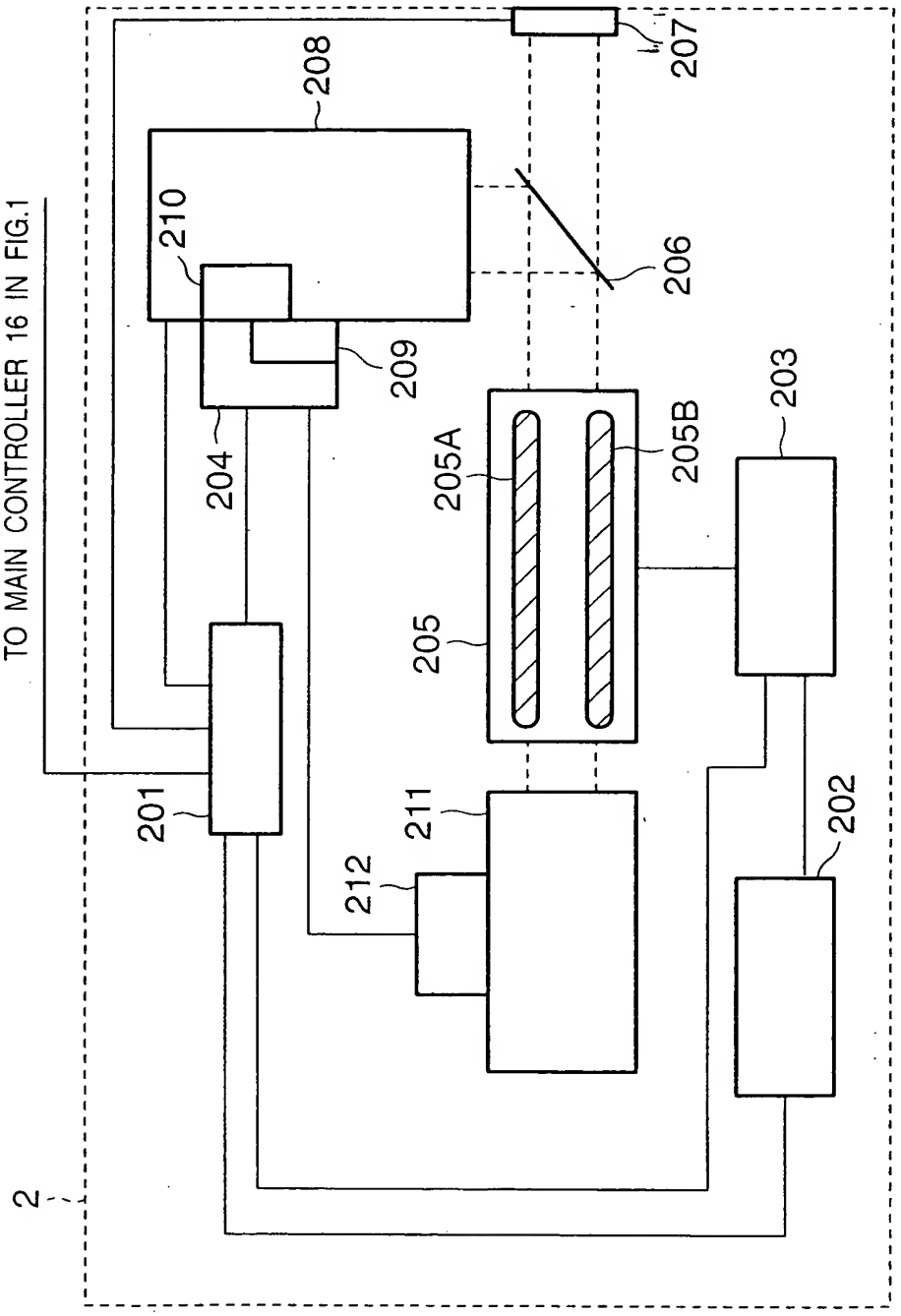


FIG. 2


TO MAIN CONTROLLER 16 IN FIG.1
2
201
202
203
204
205
205A
205B
206
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212

FIG. 3A

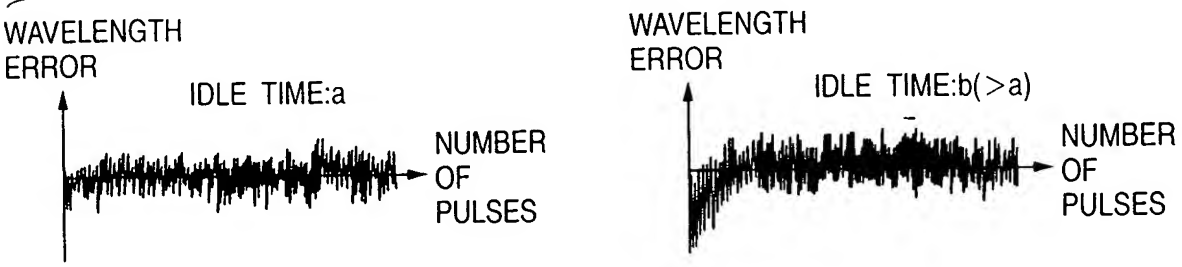


FIG. 3B

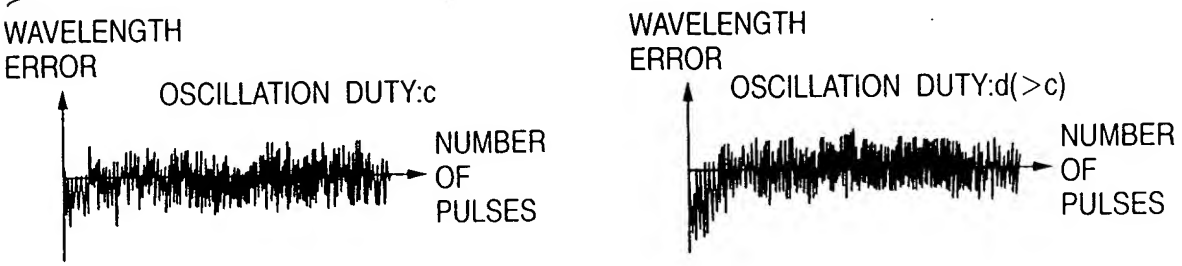


FIG. 3C

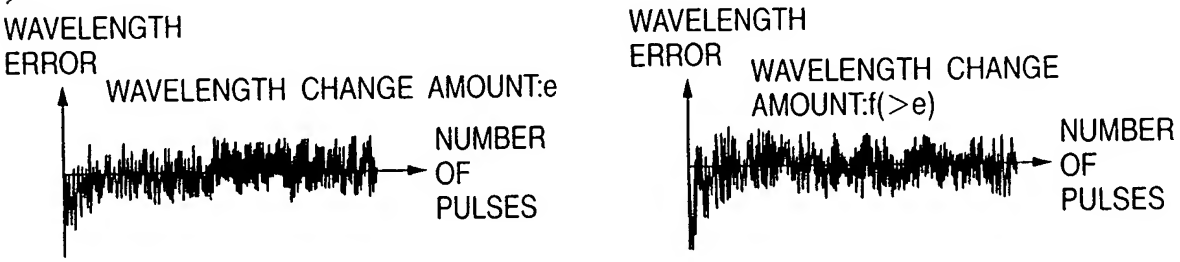


FIG. 3D

FIG. 4

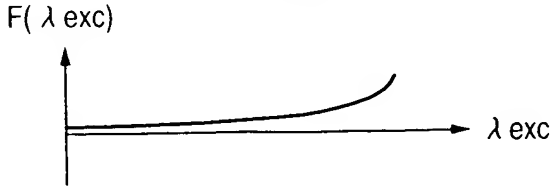


FIG. 5

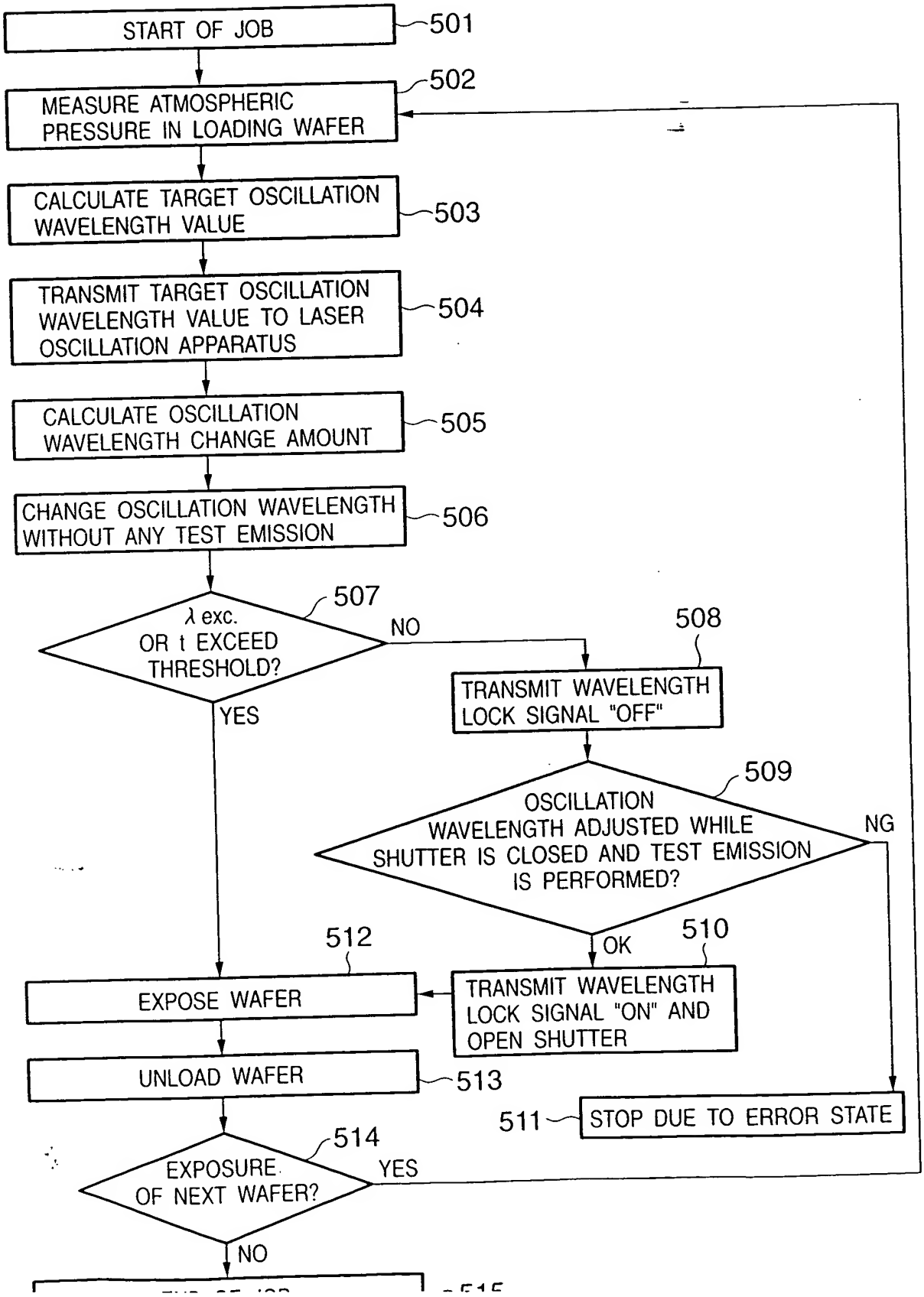

START OF JOB
501
MEASURE ATMOSPHERIC PRESSURE IN LOADING WAFER
502
CALCULATE TARGET OSCILLATION WAVELENGTH VALUE
503
TRANSMIT TARGET OSCILLATION WAVELENGTH VALUE TO LASER OSCILLATION APPARATUS
504
CALCULATE OSCILLATION WAVELENGTH CHANGE AMOUNT
505
CHANGE OSCILLATION WAVELENGTH WITHOUT ANY TEST EMISSION
506
λ exc. OR t EXCEED THRESHOLD?
507
NO
YES
TRANSMIT WAVELENGTH LOCK SIGNAL "OFF"
508
OSCILLATION WAVELENGTH ADJUSTED WHILE SHUTTER IS CLOSED AND TEST EMISSION IS PERFORMED?
509
NG
OK
TRANSMIT WAVELENGTH LOCK SIGNAL "ON" AND OPEN SHUTTER
510
EXPOSE WAVE
512
UNLOAD WAFER
513
STOP DUE TO ERROR STATE
511
EXPOSURE OF NEXT WAFER?
514
YES
NO

FIG. 6

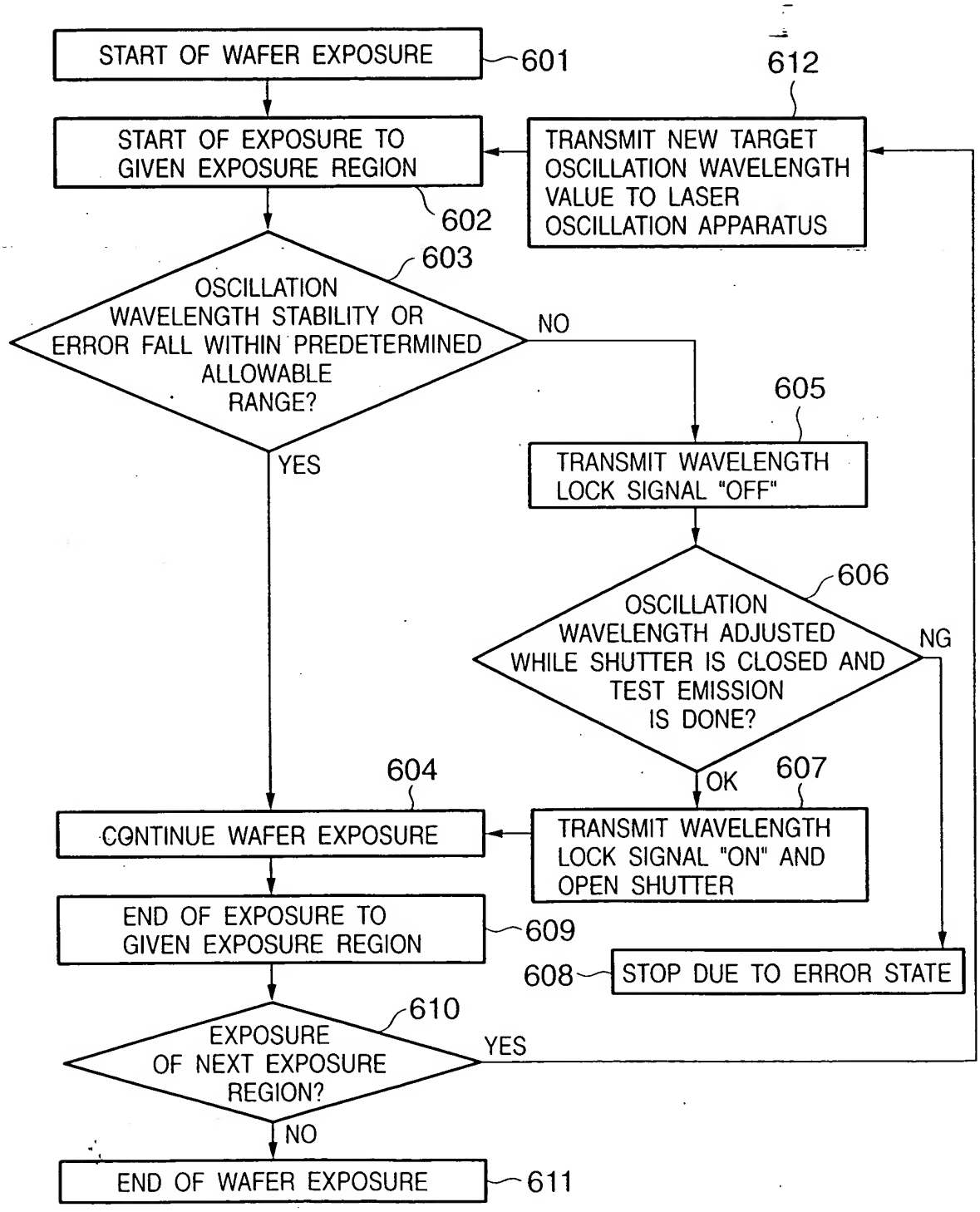
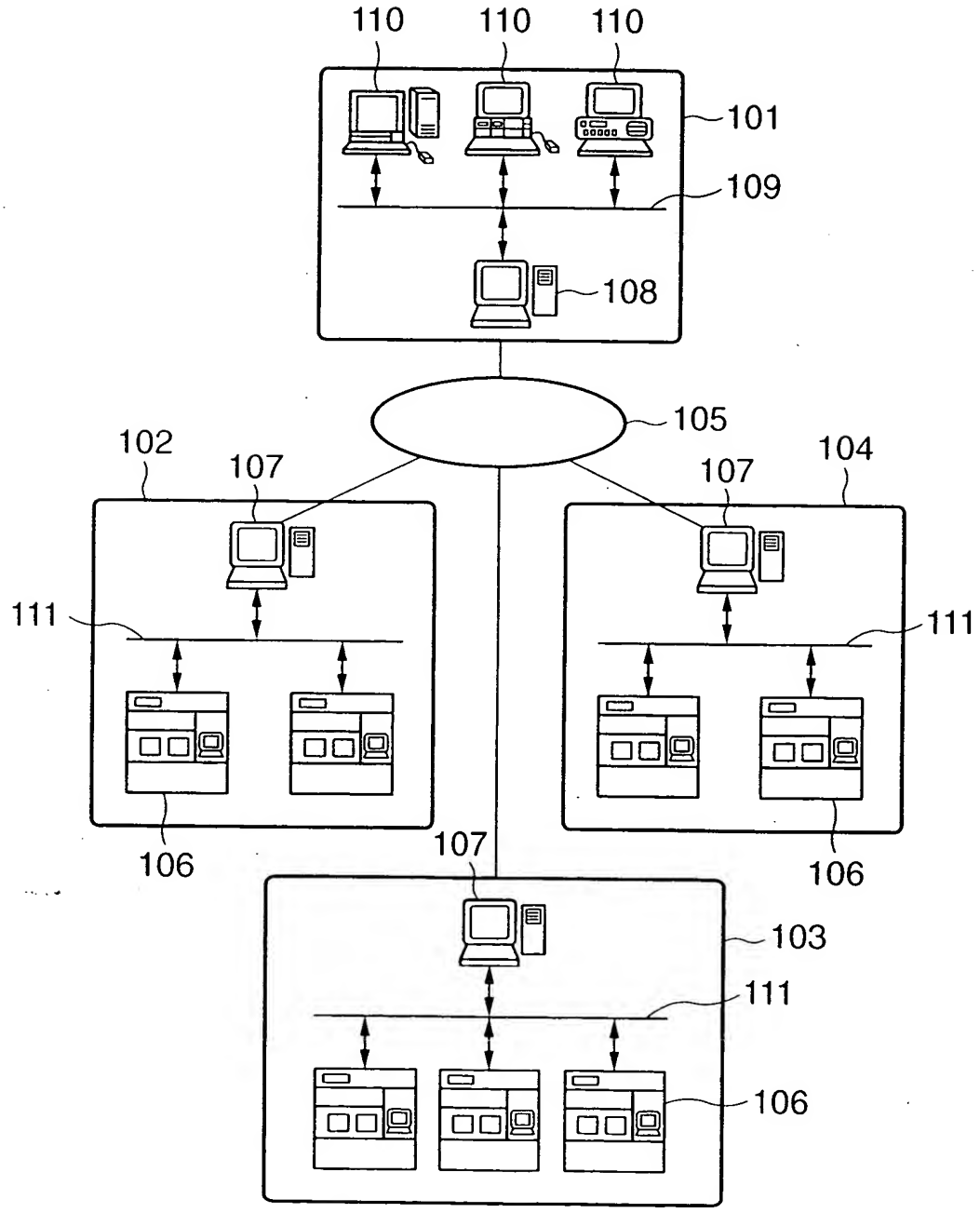

START OF WAFER EXPOSURE
601
START OF EXPOSURE TO GIVEN EXPOSURE REGION
602
OSCILLATION WAVELENGTH STABILITY OR ERROR FALL WITHIN PREDETERMINED ALLOWABLE RANGE?
603
NO
YES
TRANSMIT NEW TARGET OSCILLATION WAVELENGTH VALUE TO LASER OSCILLATION APPARATUS
612
TRANSMIT WAVELENGTH LOCK SIGNAL "OFF"
605
OSCILLATION WAVELENGTH ADJUSTED WHILE SHUTTER IS CLOSED AND TEST EMISSION IS DONE?
606
NG
OK
TRANSMIT WAVELENGTH LOCK SIGNAL "ON" AND OPEN SHUTTER
607
CONTINUE WAFER EXPOSURE
604
END OF EXPOSURE TO GIVEN EXPOSURE REGION
609
STOP DUE TO ERROR STATE
608
EXPOSURE OF NEXT EXPOSURE REGION?
610
YES
NO
END OF WAFER EXPOSURE
611

FIG. 7


110
110
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111
106

FIG. 8

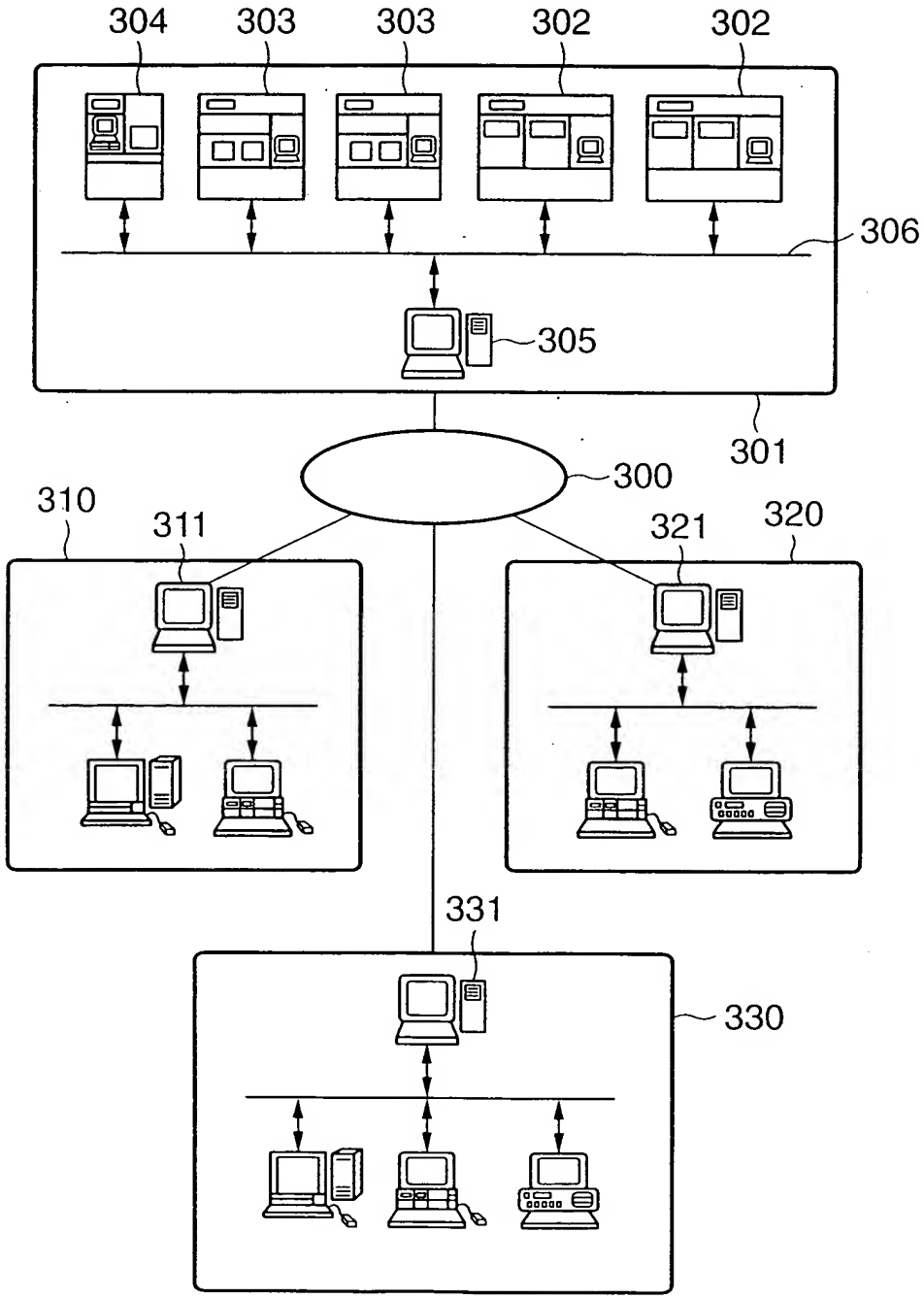

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FIG. 9

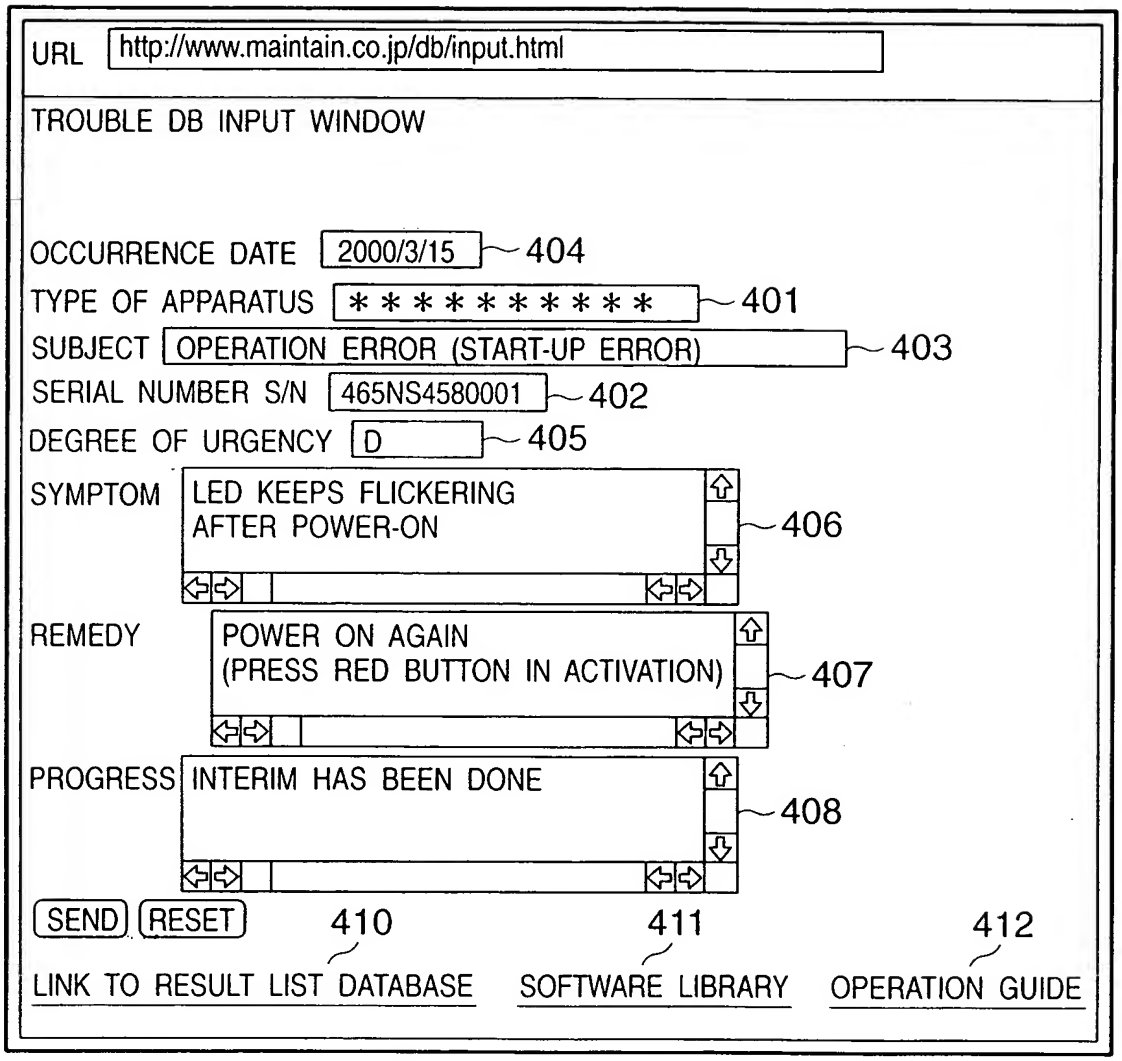
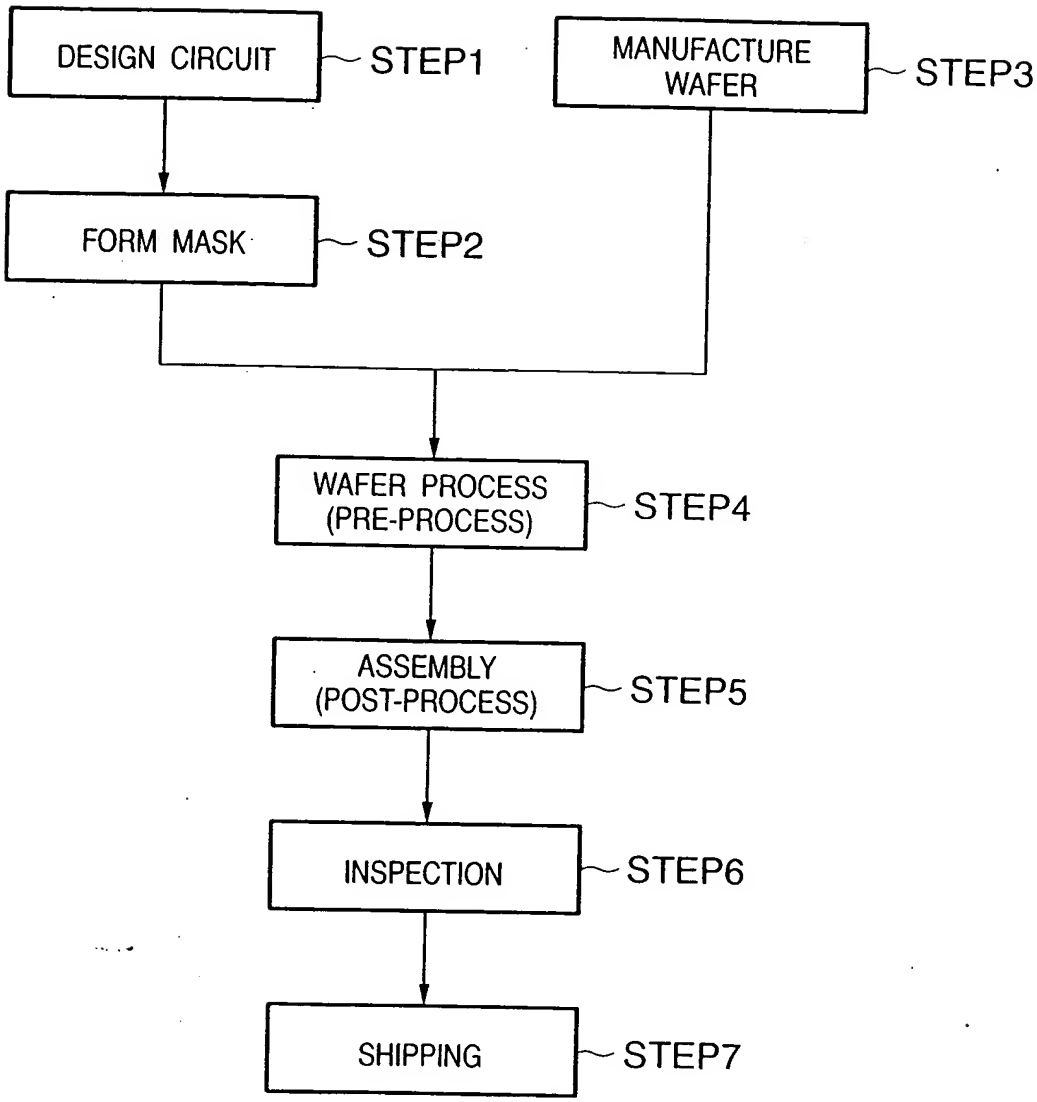

URL
http://www.maintain.co.jp/db/input.html
TROUBLE DB INPUT WINDOW
OCCURRENCE DATE
2000/3/15
404
TYPE OF APPARATUS
****
401
SUBJECT
OPERATION ERROR (START-UP ERROR)
403
SERIAL NUMBER S/N
465NS4580001
402
DEGREE OF URGENCY
D
405
SYMPTOM
LED KEEPS FLICKERING
AFTER POWER-ON
406
REMEDY
POWER ON AGAIN
(PRESS RED BUTTON IN ACTIVATION)
407
PROGRESS
INTERIM HAS BEEN DONE
408
SEND
RESET
410
411
412
LINK TO RESULT LIST DATABASE
SOFTWARE LIBRARY
OPERATION GUIDE

FIG. 10



SEMICONDUCTOR DEVICE MANUFACTURING FLOW

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FIG. 11

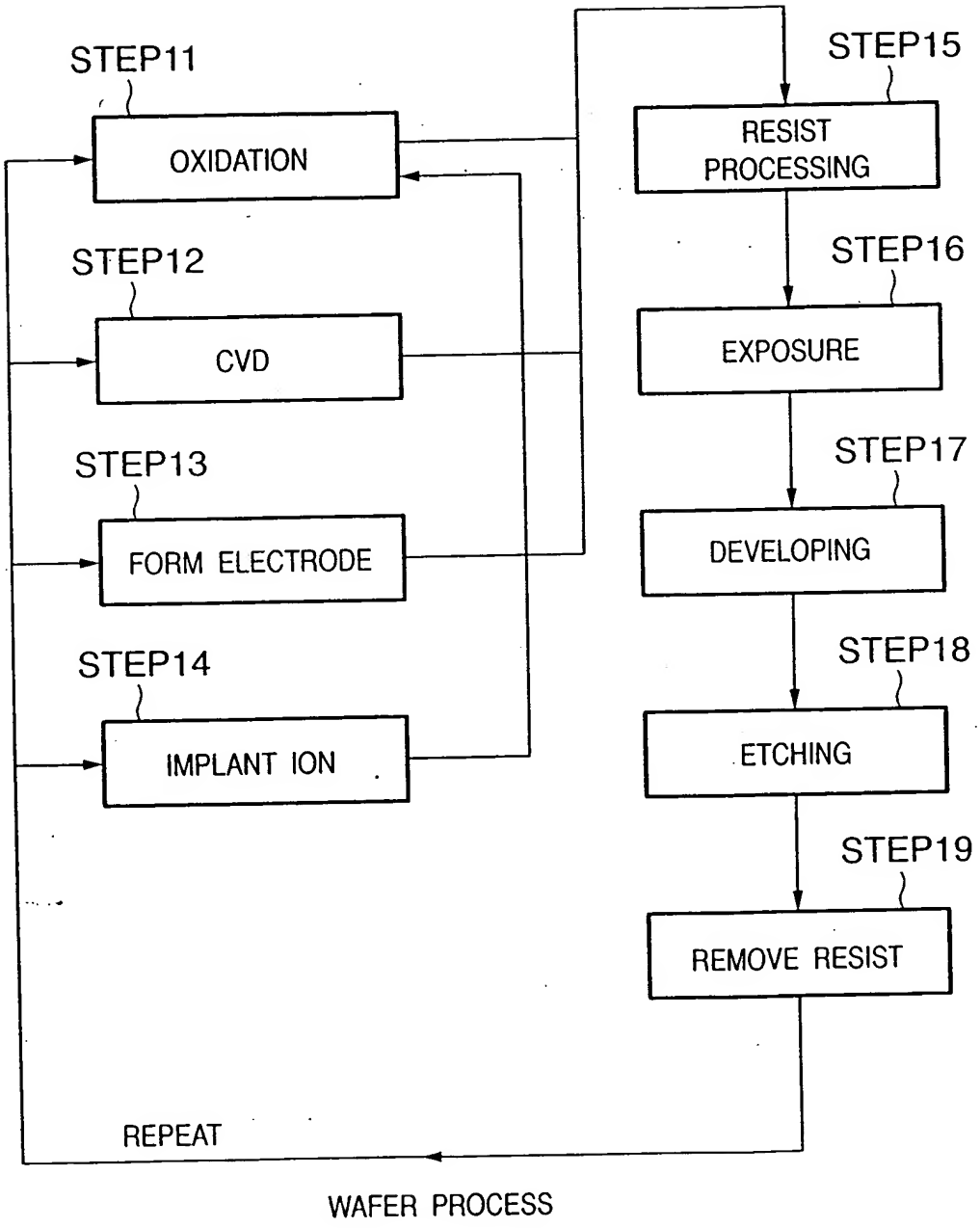

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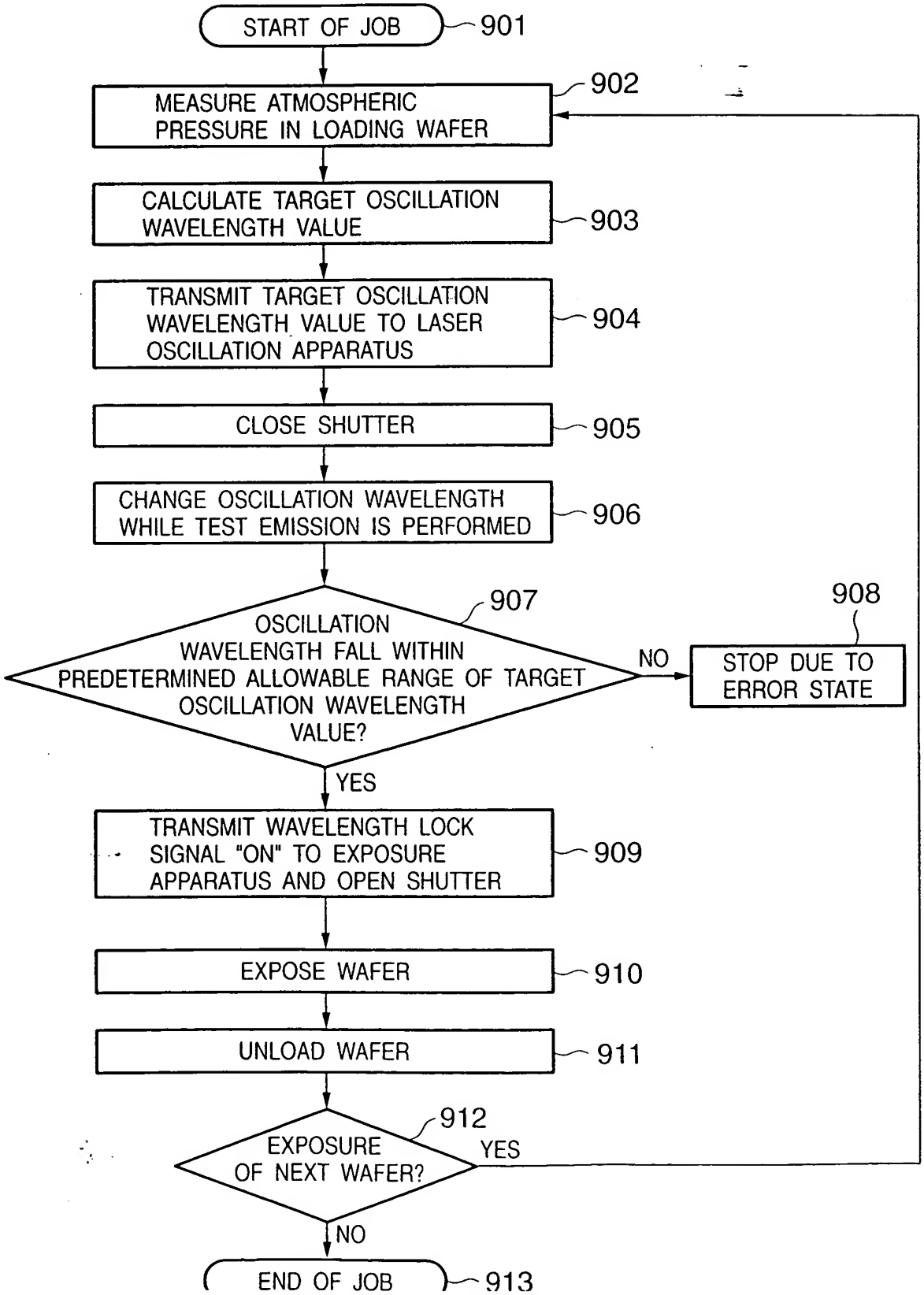
FIG. 12


START OF JOB
901
MEASURE ATMOSPHERIC PRESSURE IN LOADING WAFER
902
CALCULATE TARGET OSCILLATION WAVELENGTH VALUE
903
TRANSMIT TARGET OSCILLATION WAVELENGTH VALUE TO LASER OSCILLATION APPARATUS
904
CLOSE SHUTTER
905
CHANGE OSCILLATION WAVELENGTH WHILE TEST EMISSION IS PERFORMED
906
OSCILLATION WAVELENGTH FALL WITHIN PREDETERMINED ALLOWABLE RANGE OF TARGET OSCILLATION WAVELENGTH VALUE?
907
NO
908
STOP DUE TO ERROR STATE
YES
TRANSMIT WAVELENGTH LOCK SIGNAL "ON" TO EXPOSURE APPARATUS AND OPEN SHUTTER
909
EXPOSE WAFER
910
UNLOAD WAFER
911
EXPOSURE OF NEXT WAFER?
912
YES
NO
END OF JOB
913